CLAIMS:

1. A gear pump for sending fluid under pressure, the gear pump comprising a pump section that draws fluid and discharges pressurized fluid, wherein the pump section includes:

a gear train having a pair of meshed gears, wherein each gear defines a plurality of pump chambers for conveying fluid in the pump section;

a drive shaft having a cylindrical surface, wherein one of the gears is coupled to the drive shaft such that the gear rotates integrally with the drive shaft; and

a driven shaft having a cylindrical surface, wherein the driven shaft supports the other one of the gears,

wherein the pump section has an internal space that is located at a position adjacent to at least one of the gears and about the cylindrical surface of at least one of the drive shaft and the driven shaft, and wherein the pressure atmosphere of the internal space is an intermediate pressure atmosphere of the pressure of fluid drawn into the pump section and the pressure of fluid discharged from the pump section.

2. The gear pump according to claim 1, wherein the pump section has a fluid conveying passage that includes the pump chambers, wherein the pump section discharges fluid drawn into the fluid conveying passage from the fluid conveying passage through the pump chambers, wherein the fluid conveying passage has an intermediate-pressure zone, the pressure atmosphere of which is an intermediate pressure atmosphere of the pressure of fluid drawn into the fluid conveying passage and the pressure of fluid discharged from the fluid conveying passage, and wherein the pump section has a pressure introduction passage that connects the internal space with the intermediate-pressure zone.

3. The gear pump according to claim 2, wherein the gear train is one of a plurality of gear trains that include at least a first gear train and a second gear train, wherein the fluid conveying passage includes a communication passage for guiding fluid discharged from the first gear train to the second gear train, and wherein the communication passage functions as the intermediate-pressure zone.

4. The gear pump according to claim 1, further comprising a pressure regulating valve, wherein the pressure regulating valve is capable of releasing the pressure of the internal space, thereby adjusting the pressure of the internal space to an intermediate pressure of the pressure of fluid drawn into the pump section and the pressure of fluid discharged from the pump section.

5. The gear pump according to claim 4, wherein the pump section has a fluid conveying passage that includes the pump chambers, wherein the pump section discharges fluid drawn into the fluid conveying passage from the fluid conveying passage through the pump chambers, wherein the fluid conveying passage has a high-pressure zone, the internal pressure of which is higher than the pressure of the internal space, and wherein the pressure regulating valve prevents the pressure of the internal space from being increased due to pressure leakage from the high-pressure zone to the internal space.

6. The gear pump according to claim 4, wherein the internal space is connected to a tank with a pressure regulation passage, the tank storing fluid that is supplied to the pump section, and wherein the pressure regulating valve is located in the pressure regulation passage.

7. The gear pump according to claim 6, further comprising:

a housing for accommodating the pump section; and

a sub tank, wherein the sub tank stores in the housing fluid supplied from the tank to supply the fluid to the pump section,

wherein the sub tank is provided in a section of the pressure regulating passage that is located between the pressure regulating valve and the tank.

8. The gear pump according to claim 6, further comprising:

a motor for rotating the drive shaft; and

a housing for accommodating the pump section and the motor,

wherein the pump section has a gear housing for accommodating the gears, and

wherein the pump section is located between the pressure regulating valve and the motor, and wherein the gear housing has a passage for connecting the internal space with the pressure regulating valve.

9. The gear pump according to claim 1, further comprising:

a motor for rotating the drive shaft; and

a housing for accommodating the pump section and the motor.

10. The gear pump according to claim 1, wherein the internal space is one of a pair of internal spaces that are defined about the cylindrical surface of the drive shaft and about the cylindrical surface of the driven shaft, respectively, and wherein the pressure atmosphere of each internal space is an intermediate pressure atmosphere of the pressure of fluid drawn into the pump section and the pressure of fluid discharged from the pump section.

11. The gear pump according to claim 1, wherein the fluid is liquefied gas fuel.

12. The gear pump according to claim 1, wherein the gear pump is mounted on a vehicle.

13. A gear pump for sending fluid under pressure, the gear pump comprising a pump section that draws fluid and discharges pressurized fluid, wherein the pump section includes:

a plurality of gear trains that include at least a first gear train and a second gear train, wherein each gear train has a pair of meshed gears, wherein each gear defines a plurality of pump chambers for conveying fluid in the pump section;

a drive shaft having a cylindrical surface, wherein one of the gears of each gear train is coupled to the drive shaft such that the gear rotates integrally with the drive shaft;

a driven shaft having a cylindrical surface, wherein the driven shaft supports the other one of the gears of each gear train; and

a fluid conveying passage that includes the pump chambers, wherein the fluid conveying passage includes a communication passage for guiding fluid discharged from the first gear train to the second gear train,

wherein the pump section discharges fluid drawn into the fluid conveying passage from the fluid conveying passage through the pump chambers, wherein the pump section has an internal space that is located at a position adjacent to at least one of the gears and about the cylindrical surface of at least one of the drive shaft and the driven shaft, and wherein the pump section has a pressure introduction passage that connects the internal space with the communication passage.